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ABSTRACT

This study was intended to establish "base-line" data with respect to teacher utilization of available microcomputer software for the purposes of: (1) generating teacher-made appraisals; (2) scoring/analyzing teacher-made appraisals; and (3) assigning and recording grades. Differences in reported utilization at the K-4, 5-8, and 9-12 grade levels were also examined, and an estimate was made of the use of various microcomputer systems in MECC (Minnesota Educational Computing Consortium) member schools. A sample of 300 schools was selected from the MECC national membership mailing list, and survey forms were mailed to the contact person named on the MECC mailing list. Responses were received from 217 schools (72%) in 40 states; the number of responses per state varied from 1 to 35. Respondents were asked to estimate the percentage of teachers in their school district using microcomputers for the three specified purposes. Results of the survey reveal that classroom teachers make relatively little use of microcomputers to generate or score/analyze teacher-made appraisals. Although greater numbers of teachers were using computers in assigning and recording grades, only half of the respondents indicated that this practice was employed by more than 10% of the teachers in their school district. It was found that teachers at grade levels K-4 use computers much less frequently than teachers at higher grade levels across all three applications, while teachers at levels 9-12 used computers with the greatest frequency. Apple computers were found to be almost universally available (99%), followed by Macintosh (65%), and IBM/IBM compatible (63%). It is concluded that the development of inservice workshops and training programs for teachers that demonstrate the use of software for testing could result in both a reduction of teacher time and effort and an enhancement of the quality of classroom assessment procedures. A copy of the survey form is appended. (8 references) (BBM)

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A Survey of Microcomputer Utilization for Purposes of Classroom Assessment

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Background/Problem Statement

Standard texts on classroom assessment for teachers typically stress the importance of sound measurement practices. Among these practices are:

1. development and maintenance of a pool of clearly written test items which representatively sample the domain of instruction.
2. statistical analyses of test items to guide decisions concerning item quality and possible item revision, and
3. clearly formulated grading practices which reflect a relative weighting of various components of achievement that can be readily communicated to students.

Despite the efforts of the textbook authors and instructors on classroom measurement in promoting these practices, there is ample and consistent evidence that few, if any, classroom teachers follow the advice offered by the experts. For example, see Gullickson and Ellwein (1985), Stiggins, Conklin, and Bridgeford (1986) and Stiggins, Frisbie and Griswold (1989).

A primary reason often cited for the failure of teachers to employ recommended practices is a lack of time and expertise needed to implement them. This was a legitimate argument for many years because teachers had to rely upon hand calculation and other low technology systems. This situation has changed dramatically in the past decade. With the widespread introduction of microcomputers in schools, systems are available which are relatively

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inexpensive and easily used by persons with little or no prior experience with computers. There has been a corresponding explosion in the development of software applications for classroom testing. In particular, the microcomputer can be employed in item writing, item banking, test construction, item analysis, and grade assignment. There are currently several hundred programs available in one or more of these applications. Recent work in this area has been reviewed in articles by Carlson (1987), Dennee (1986), Germundsen and Glenn (1984), Hambleton (1984), and Nitko and Hsu (1984).

This study was designed to determine the extent to which teachers employ available software packages in their everyday classroom assessment activities.

Study Goals

The primary goal of the study was to determine the frequency of the use of various software packages for classroom assessment by teachers in schools which are members of MECC. Specifically, the study is an attempt to establish "base-line" data with respect to teacher utilization of software for purposes of:

a. generating teacher-made appraisals,

b. scoring/analyzing teacher-made appraisals, and

c. assigning and recording grades.

A secondary goal of the project was to determine differences in reported utilization of software for each of the three purposes according to the grade level at which teachers work, e.g. K-4, 5-8 and 9-12.

Finally, a third goal of the project was to obtain an estimate of the use of various microcomputer systems in MECC member schools.

Methodology

A brief survey form was designed to obtain responses to a series of questions concerning teacher use of various microcomputer systems and applications of such systems for classroom assessment purposes. The form was intentionally designed so that it could be completed in no more than 10 minutes. (A copy of the survey form is attached.)

A sample of 300 schools was selected from the MECC national membership mailing list. A cover letter describing the purpose of the study was enclosed along with a copy of the survey form. These were mailed to the individual in each of the 300 selected schools whose name appears on the MECC mailing list.

After one month a follow-up letter and a second survey form was sent to schools from which no response to the initial mailing had been received. All responses which were received within 60 days of the initial mailing were recorded and tabulated. These provide the basis for the results.

Results

Responses were received from 217 schools (72%) within 60 days of the initial mailing. Responses were received from 40 states with the number of responses per state varying from one (eight states) to 35 (California).

With respect to the use of computers for purposes of classroom assessment, respondents were asked to estimate the percent of teachers in their school district using the following four categories: None (0%), 1-10%, 11-50% and over 50%. When asked about the three applications of main interest, the percent of responses in each of these categories were as follows.

a.	generating teacher-made appraisals	11 None	51 1-10%	34 11-50%	4 over 50%
b.	scoring/analyzing teacher-made classroom appraisals	23 None	55 1-10%	19 11-50%	3 over 50%
c.	assigning and recording grades	7 None	41 1-10%	43 11-50%	9 over 50%

When asked to estimate the use of computers for these three purposes by grade level (K-4, 5-8, 9-12, All equally), the percent responses were:

a.	generating teacher-made appraisals	12 K-4	29 5-8	36 9-12	23 Equal
b.	scoring/analyzing teacher-made classroom appraisals	11 K-4	27 5-8	39 9-12	23 Equal
c.	assigning and recording grades	6 K-4	32 5-8	42 9-12	20 Equal

In response to the question regarding the use of different computer systems in the respondent's school district, the percent indicating each option was as follows: Apple - 99%, Macintosh - 65%, IBM/IBM compatible - 63%, Commodore - 16%, and Other - 13%.

Conclusions

Results of the survey reveal that classroom teachers make relatively little use of microcomputers for purposes of generating or scoring/analyzing teacher-made appraisals. Although somewhat greater numbers of teachers use computers in assigning and recording grades, only half of the respondents indicated that this practice was employed by more than 10% of the teachers in their school district. For all three applications, teachers at grade levels K-4 employ computers with much less frequency than do teachers at higher grade levels. Teachers at grade levels 9-12 tend to employ computers with greatest frequency. As expected, Apple computers are virtually universally available

to teachers while both Macintosh and IBM/IBM compatible systems are available in over 60% of the sample districts.

It should be noted that these results probably overestimate the use of computers in schools throughout the country. This is due to the fact that the population from which this sample was drawn consists of members of MECC - schools with a definite commitment to computer utilization in education. In addition, the median number of teachers in responding school districts is 250. This implies that MECC member school districts are fairly large and are likely to have more resources to support the use of computers by teachers.

Recommendations

There is clearly a need for more systematic training of teachers in the use of microcomputers as an aid in classroom assessment. Stiggins, Conklin and Bridgeford (1986) report that teachers spend approximately 30% of their time on activities related to classroom assessment. Software is now widely available to assist teachers with this job. The development of in-service workshops and training programs which demonstrate the use of such software could result in both a reduction of teacher time and effort and enhance the quality of classroom assessment procedures.

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Survey of Teacher Software Utilization for Classroom Assessment

Sponsored by the MECC/University of Minnesota
Center for the Study of Educational Technology

Directions: Please answer each question based upon your knowledge of classroom assessment practices of teachers in your school district. Even if you are not certain of some responses please make your "best guess" response.

Respondents's Title: _____
No. of teachers in school district: _____

1. Please check all the computer systems that are used by teachers in your school district. Specify models in the space after each system you check.

___ a. Apple	_____	___ d. Macintosh	_____
___ b. Commodore	_____	___ e. Other	_____
___ c. IBM/IBM Compatible	_____		

2. If you checked more than one system above, circle the one that is most commonly used.

3. Does your school district have a policy governing the teacher use of microcomputers for the purpose of classroom appraisal? yes ____ no ____

4. Are microcomputers available in your building that are reserved **primarily** for teacher use?
yes ____ no ____

5. Please estimate below the percentage of teachers in your school district who use computers for each purpose stated below:

	None (0%)	1 - 10%	11 - 50%	Over 50%
a. generating teacher-made classroom appraisals:	_____	_____	_____	_____
b. scoring/analyzing teacher-made classroom appraisals:	_____	_____	_____	_____
c. assigning and recording grades:	_____	_____	_____	_____

6. Please indicate below at what grade levels microcomputers are **most commonly** used by teachers for each purpose listed. (Check only one for each purpose.)

	K-4	5-8	9-12	All equally
a. generating teacher-made classroom appraisals:	___	___	___	___
b. scoring/analyzing teacher-made classroom appraisals:	___	___	___	___
c. assigning and recording grades:	___	___	___	___

7. On the reverse side, please describe any other uses that teachers in your school district make of computers **for purposes of classroom appraisal of students.**